

Claims

- 1 1. A circuit to route signals, comprising:
 - 2 A plurality of input pins to receive input signals;
 - 3 A plurality of output pins to transmit output signals;
 - 4 A plurality of connectors each wired to exactly one of the plurality of input pins and the
 - 5 plurality of output pins;
 - 6 A plurality of switches, each possessing three poles;
 - 7 A first plurality of wires ^{each} electrically connecting exactly one input pin to a first pole of
 - 8 exactly one switch;
 - 9 A second plurality of wires each electrically connecting exactly one output pin to a
 - 10 second pole of exactly one switch;
 - 11 A third plurality of wires each electrically connecting exactly one connector to the
 - 12 common pole of exactly one switch;
 - 13 A switch matrix to transmit signals from at least one of said input pins to at least one of
 - 14 said output pin.

1 2. The circuit of claim 1, wherein the circuit is to be housed in a single frame.

1 3. The circuit of claim 1, wherein said circuit is to receive and transmit video signals.

1 4. The circuit of claim 1, wherein said circuit is to receive and transmit audio signals.

1 5. The circuit of claim 1, wherein said circuit is to receive and transmit data signals.

1 6. The method of claim 1, wherein said circuit has two connectors connected to each input
2 pin in a loop-through configuration.

1 7. The method of claim 1, wherein said circuit has output pins that can be connected to more
2 than one connector.

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1 8. A method of selectively connecting one of a plurality of input receiving wires and one of
2 a plurality of output transmitting wires to one of a plurality of selectable connectors in a signal
3 routing circuit, the method comprising:

4 retrieving data representing a number of non-selectable input connectors and non-
5 selectable output connectors and selectable input/output connectors from the circuit;

6 receiving data through an interface from a user representing a number of desired input
7 connectors each to be connected to an input receiving wire;

8 comparing said number of desired input connectors to the sum of said non-selectable
9 input connectors and a plurality of selectable input/output connectors;

10 repeating said receiving and comparing until the sum of said non-selectable input
11 connectors and the plurality of selectable input/output connectors equals or exceeds the number
12 of said desired input connectors;

13 calculating the number of available output connectors by adding the number of non-
14 selectable input connectors, non-selectable output connectors, and selectable input/output
15 connectors together and subtracting the number of desired input connectors therefrom;
16 displaying the number of available output connectors and desired input connectors using
17 a display mechanism;
18 repeatedly connecting a selectable input/output connector to an input receiving wire until
19 the sum of said non-selectable input connectors and the selectable input/output connectors
20 connected to an input receiving wire equals the number of said desired input connectors;
21 repeatedly connecting all selectable input/output connector not so connected to an input
22 receiving wire to an output transmitting wire.

1 9. The method of claim 8, wherein said circuit receives and transmits video signals.

1 10. The method of claim 8, wherein said circuit receives and transmits audio signals.

1 11. he method of claim 8, wherein said circuit receives and transmits data signals.

1 12. The method of claim 8, wherein said circuit has two connectors connected to each input
2 pin in a loop-through configuration.

1 13. The method of claim 8, wherein said circuit has output pins that may be connected to
2 more than one connector.

1 14. A circuit routing signals, comprising:

2 a plurality of input pins to receive input signals;

3 a plurality of output pins to transmit output signals;

4 a plurality of connectors wired to exactly one of the plurality of input pins and one of the
5 plurality of output pins;

6 a switching apparatus;

7 a first plurality of wires each electrically connecting exactly one input pin to a first pole
8 of the switching apparatus;

9 a second plurality of wires each electrically connecting exactly one output pin to a second
10 pole of the switching apparatus;

11 a third plurality of wires each electrically connecting exactly one connector to a common
12 pole of the switching apparatus;

13 a matrix circuit to transmit signals in one of from a subset of the input pins to a subset of
14 the output pins, from a subset of the input pins to all of the output pins, and from all of the
15 input pins to a subset of the output pins.

1 15. A routing circuit comprising:

2 a crosspoint matrix having a plurality of input pins and output pins, said crosspoint matrix
3 connecting ones of said input pins to ones of said output pins;

4 at least one input connector connected to one of said output pins;

5 at least one output connector connected to one of said output pins;

6 at least one switchable connector connected to one of said input pins and output pins via a
7 switch.